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ABSTRACT

As part of a larger study of the demographics, family, household, health, diet, activity, functioning, and mental ability of older Japanese people living in Hawaii which will be compared to similar studies conducted in Japan, personality data were obtained from 101 noninstitutionalized Japanese with an average age of 92 years, residing in Hawaii. Data were obtained by home interviews with the assistance of a close family member or caregiver who rated the subject on five personality traits (Cooperative, Expressive, Tenacious, Introvert, Sensitive) consisting of eight components per trait. The subjects received markedly higher scores in Cooperative and Tenacious traits than in the other three traits. Identical findings were obtained from Japanese studies on similar-aged populations. A reasonable hypothesis is that these two traits characterize longevous individuals because of their survivalistic and adaptational functions. There was a positive correlation between the Cooperative and Tenacious traits, and no positive correlations between these traits and the remaining three traits. There were highly significant negative correlations between the Cooperative trait and the three "non-survivalistic" traits. Cooperative and Tenacious traits were also associated with better physical, mental, and social function. (NB)

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TECHNICAL REPORT

PERSONALITY STUDY OF HAWAII JAPANESE NONAGENARIANS
PRELIMINARY FINDINGS

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REHABILITATION RESEARCH & TRAINING CENTER
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John A. Burns School of Medicine
University of Hawaii
Rehabilitation Hospital of the Pacific

May 1987

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PERSONALITY STUDY OF JAPANESE NONAGENARIANS

PRELIMINARY FINDINGS

May 1987

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Introduction

This report contains a brief analysis of personality data from a study of 101 noninstitutionalized Japanese with and an average age of 92 years, residing in Hawaii. Data were obtained by home interview with the assistance of a close family member or caretaker. The personality information was part of a larger data set covering demographics, family data, household information, health, diet, activity, and functioning, and the Hasegawa Mental Ability Test. The overall study in part was designed for comparison with similar studies in Japan.

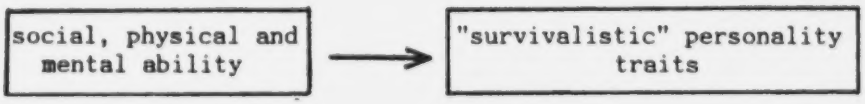
The Personality Instrument

The instrument was taken from a study of centenarians conducted by the Tokyo Metropolitan Institute of Gerentology. Personality was assessed by scores on five traits. Each trait was composed of 8 components (Table 1). A score of "1" was assigned to each component characterizing the subject, and the scores were summed to make up a trait score. Ratings were made by a close family member, who knew the subject well and was closely involved in his/her care.

Frequencies and Means of the Traits and A Hypothesis

Table 2 shows the mean scores of each trait and the frequency distributions of their components. The subjects had markedly higher scores in Cooperative and Tenacious traits than in the other three. Identical findings were obtained from Japanese studies on similar aged populations. A reasonable hypothesis is that these two traits characterize longevous individuals because of their survivalistic and adaptational functions.

A general model for understanding the relationships between the correlates and personality may be drawn as follows: As already speculated from the distributions of the trait components, certain personality traits seem to characterize this long lived sample. Factors known to be related to longer life should then also be correlates of personality. For example, we know that loss of independence, functional ability and mental capacity are predictors of death, and obviously, maintenance of these faculties tend to occur in longer living individuals. These relationships may be depicted as follows:



The following analyses on the intercorrelation of the traits, and their relationships to physical, mental and social functioning, will bear on this general model.

First, a note on the use of distribution-free statistics. Since many of the variables were non-normal in distribution, rank-order algorithms were applied. The wisdom of this procedure was confirmed by replicating the analyses with parametric and non-parametric statistics. The discrepancies, the directions of the discrepancies, and the more meaningful results from the ranked data led to our adoption and display of the non-parametric findings.

Intercorrelation of the Traits

In the correlation matrix of the traits (Table 3), Cooperative and Tenacious, the combination of which we have designated as "survivalistic", are positively correlated. There are no positive correlations between these and the remaining three traits. There are also highly significant negative correlations between Cooperative and the "non-survivalistic" traits. This suggests that the inverse of Introvert (or Extrovert) and the inverse of Sensitive (Not Sensitive?) may have survivalistic value. Tenacious does not seem to have the same relationship with the inverse of the non-survivalistic traits, so perhaps it doesn't have as much survivalistic meaning as Cooperative. Note that its mean score is not as high as that of Cooperative, though still higher than those of the remaining traits. Note also a tight 3-way cluster among Cooperative, the inverse of Introvert, and the inverse of Sensitive.

Correlates of Personality

The next step in the analylsis is the investigation of the correlates of the personality traits (Tables 5 to 8). Under the hypothesis that personality is somehow related to longevity, a number of variables relating to social, physical, and mental function were investigated. A number of demographic variables were also included. To better understand these variables, consult their codes, frequency distributions, and descriptive statistics listed in Table 4. One of these correlates is the Hasegawa Test. This inventory was developed by Dr. Kazuo Hasegawa, professor of psychiatry at St. Marianna Medical School in Tokyo, for use with older people. The test has been widely used in Japan and Asia.

First, let us look at the demographics (Table 5). Age and sex bear no relationship to any of the traits. Age in this sample had a very compact distribution (S.D. = 3.3 years) which would make it difficult to demonstrate an age effect. Education was related to Cooperative and Tenacious which have been characterized as "adaptational-survivalistic". Education, it should be noted, has a well-known actuarial relationship with longevity. Education is also related to Sensitive. This is particularly interesting since Cooperative and Sensitive are inversely related.

Other correlates refer to physical function. The areas examined are hearing ability, orbit of activity, and ADL (Table 6). Here we also find a striking fit to the conceptual model. Better hearing is uniquely associated with two of the traits - Cooperative and Tenacious. Mobility, as measured by orbit of activity, is also related to Cooperative and Tenacious and inversely related to Introvert and Sensitive. The composite ADL measure, tapping the degree of independence in feeding, toileting, bathing, dressing, and ability to express wants, also is related to Cooperative and Tenacious and inversely related to Introvert and Sensitive.

The next group of correlates have to do with social and mental function. Social function is operationalized by attendance at meetings of social organizations and attendance at Japanese festivals; mental function is operationalized by the score on the Hasegawa Test (Table 7). Social organizational activity is related to Cooperative (but not Tenacious) and negatively related to Introvert and Sensitive. Japanese festival celebration is related to both Cooperative and Tenacious and also inversely to Introvert and Sensitive. Finally, the Hasegawa score unerringly follows the model pattern: positive correlations with Cooperative and Tenacious, and negative correlations with Introvert and Sensitive.

The final area investigated was language fluency, operationalized by speaking English and reading/writing English (Table 8). Both these related exclusively to Cooperative and Tenacious, in further "fit" with the conceptual scheme. Language fluency is also strongly related to physical and mental function (Table 9).

Summary

These preliminary findings, from a sample of nonogenarians, suggest that Cooperative and Tenacious personality traits encourage adaptation and survival into advanced age. The hypothesis is further strengthened by the fact that these traits are associated with better physical, mental, and social function. This is important data since personality data on the "oldest-old" is very much lacking in the literature.

The data, however, are only inferential. An ideal test of the hypothesis would be through a prospective design. A less ambitious cross-sectional approach might be comparison of a prolongevous group with a younger population which by definition is less selected for prolonged longevity. The hypothesis should also be tested in different ethnic groups, as well as with other methods of personality assessment. For the moment, the present findings do provide specific directions for future research, namely, that Cooperative and Tenacious traits have special adaptational-survival value. Such research, perhaps even the hypothesis itself, could provide guidance for mental health education and clinical application.

Table 1. Components of Five Personality Traits

	Components
Cooperative	(1) bright (2) pleasant (3) optimistic (4) easy to understand (5) wide acquaintance (6) easy to become acquainted with (7) willing to take care of others
Expressive	(1) gives up easily (2) earnest (3) conspicuous (4) exaggerates (5) many likes and dislikes (6) jealous (7) selfish (8) stubborn
Tenacious	(1) scrupulous (2) distrustful (3) enthusiastic (4) persistent (5) responsible (6) perfectionist (7) firm (8) uncompromising
Introvert	(1) sensitive (2) distrustful (3) quiet (4) unrealistic (5) associates little (6) not sociable (7) moody (8) inflexible
Sensitive	(1) modest (2) shy (3) nervous (4) partly nervous (5) introverted (6) worried (7) timid (8) not a mixer

Table 2. Frequency Distributions and Mean Scores of the Traits

Score	Cooperative	Expressive	Tenacious	Introvert	Sensitive
0	0	30	2	11	11
1	1	28	0	29	28
2	4	16	2	24	11
3	3	10	5	17	19
4	4	8	13	11	16
5	7	5	26	4	6
6	10	1	22	1	8
7	22	0	14	2	1
8	49	2	16	1	0
X	6.75	1.69	5.60	2.20	2.56
SD	1.74	1.78	1.71	1.65	1.83

Table 3. Spearman Correlation Matrix[1] of the Traits

	Cooperative	Expressive	Tenacious	Introvert
Expressive	-.20 (.047)			
Tenacious	.37 (.000)	.01 (ns)		
Introvert	-.50 (.0000)	.35 (.001)	-.16 (ns)	
Sensitive	-.37 (.001)	.14 (ns)	-.13 (ns)	.66 (.0000)

[1] p levels are shown parenthetically; ns means p> .05 in this and following tables.

Table 4. Codes, Frequency Distributions, and Descriptive Statistics of Personality Correlates

		N	%
Sex	1 male	37	36.6
	2 female	64	63.4
Age	X 91.6, SD 3.27		
Education	Number of years schooling X 6.35, SD 3.59		
Organizations	Number of times attended social groups or organizations during last 6 months X 14.6, SD 13.5		
Japanese Festivals	Attend Japanese festivals or celebrations		
		N	%
	1 never	44	43.6
	2 rarely	25	24.7
	3 sometimes	20	19.8
	4 often	12	11.9
Hearing	Hearing ability without hearing aid		
		N	%
	1 deaf	1	1
	2 only hears loud voices near ear	12	12
	3 hears speech near ear	16	16
	4 hears distant loud voices	20	20
	5 normal hearing	51	51
Orbit of Activity		N	%
	1 confined to bed	1	1.0
	2 confined to house	17	16.8
	3 goes outside around house	36	35.6
	4 walks around neighborhood by self	10	10.0
	5 goes outside neighborhood by self	37	36.6

Note:

ADL — A summed score of independence in Activities of Daily Living scored from 1, completely unable, to 5, completely able, and comprised of the following: feeding, toileting (bowels), toileting 9 (urination), bathing, dressing and expressing wants.

Hasegawa Score — Mental abilities test of 11 items on time, place, age, place of birth, repeating numbers forwards and backwards, dates of end of WW II and Hawaii becoming a state, days in year and minutes in hour, Governor of Hawaii and President of U.S., successively subtracting a number, and recalling objects just previously seen; maximum score 32; X=19.3, SD=8.23.

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Table 5. Relationship of Demographic Variables[1] to Personality Traits

	Age r(p)	Education r(p)	Sex z(p)
Cooperative	.01 (ns)	.27 (.004)	-.93 (ns)
Expressive	.06 (ns)	.16 (ns)	-.21 (ns)
Tenacious	-.04 (ns)	.23 (.02)	-.65 (ns)
Introvert	.11 (ns)	.13 (ns)	-.58 (ns)
Sensitive	.02 (ns)	.26 (.01)	-1.02 (ns)

[1] Age and education were tested by Spearman r; sex was tested by Mann-Whitney.

Table 6. Relationship of Physical Functions to Personality Traits

	Hearing r(p)	Activity r(p)	ADL r(p)
Cooperative	.38 (.000)	.40 (.000)	.38 (.000)
Expressive	.16 (ns)	.10 (ns)	.06 (ns)
Tenacious	.22 (.03)	.28 (.000)	.28 (.01)
Introvert	.13 (ns)	-.24 (.02)	-.27 (.007)
Sensitive	.13 (ns)	-.22 (.03)	-.24 (.02)

Table 7. Relationship of Social and Mental Function to Personality Traits

	Attendance Social Organizations r(p)	Attendance Japanese Festivals r(p)	Hasegawa Score r(p)
Cooperative	.40 (.000)	.30 (.003)	.38 (.000)
Expressive	-.11 (ns)	.01 (ns)	-.02 (ns)
Tenacious	.06 (ns)	.25 (.01)	.25 (.01)
Introvert	-.25 (.01)	-.13 (ns)	-.40 (.000)
Sensitive	-.21 (.03)	-.11 (ns)	-.28 (.006)

Table 8. Relationship of English Language Fluency to Personality Traits

	Speaking r(p)	Reading/Writing r(p)
Cooperative	.30 (.003)	.24 (.02)
Expressive	.04 (ns)	.03 (ns)
Tenacious	.21 (.04)	.21 (.03)
Introvert	-.01 (ns)	-.01 (ns)
Sensitive	-.01 (ns)	-.03 (ns)

Table 9. Relationship between English Language Fluency and Physical and Mental Function

	Speaking English r(p)	Reading/Writing English r(p)
Physical		
orbit of activity	.38 (.000)	.38 (.000)
ADL	.35 (.001)	.38 (.000)
hearing	.21 (.04)	.14 (ns)
Mental		
Hasegawa Score	.42 (.000)	.45 (.000)